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ABSTRACT

This document discusses the benefits of distance education and the necessary steps for its implementation. It begins by describing the societal changes that are paving the way for distance learning, such as reduced access for expanding student populations and the dissolution of geographic boundaries. The next section explains the rationale behind a distance learning initiative, reviewing the current situation and the proposed instructional network. The following section discusses objectives, which include: increasing access to education; providing alternatives to classroom-bound instruction; reducing the cost of course delivery; increasing lifelong learning opportunities; increasing collaboration among community colleges and universities; reducing requirements for new facilities; reducing time needed to obtain a degree or training; and increasing capability through strategic partnerships with the private sector. Network design and components are also discussed, as are steps for implementing Florida's new instructional network and the resulting benefits. An addendum to the document is also included with follow-up information about implementation. (YKH)

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Florida Community College Distance Learning Consortium Report

Florida Community College Distance Learning Consortium
Tallahassee

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The Florida Community College Instructional Network

The Community College Distance Learning Consortium
The Division of Community Colleges
February 1997

Introduction
Rationale
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Network Components
Implementation
Conclusion
Addendum (July 1997)

I. INTRODUCTION

The emerging global information network is quickly bringing the power of the information age to the doorstep of every citizen. We are beginning to go A on-line @ to market and purchase goods and services 24-hours a day. The way we work is being reinvented as we begin to access documents, conduct research and collaborate with fellow workers across the street, the country, or the globe. The activities of commerce, work, and play will all be influenced by access to advanced technologies. But the real revolution will come in the way we learn, providing educational content in a totally new way. This technology revolution will allow for a student centered, customer driven approach to educational delivery. Student access will be unrestricted by time or place and will be in a form that allows the learner to move at their own pace, exploring content in the manner best suited to their individual learning style (text, audio, images, and video).

There are two notable market factors that are driving the development of this new means of delivering educational content. First there is the access gap. Over the next ten years, the student population will overwhelm the capacity of the state's campuses. Using the traditional classroom for course instruction will not be sufficient to meet the demand and without the use of one or more alternate means of delivery, facility capacity will need to expand by 50% by the year 2006. Florida cannot afford this tremendous expansion. Additionally, this capacity increase will place unusually high pressure on certain high demand, lower division courses in the postsecondary educational system. Statistics on bottleneck courses (lower division college courses with high failure and withdrawal rates and large numbers of students) assembled by the Postsecondary Education Planning Commission indicate broadly where this demand is likely to occur. The use of technology has been identified as a resource which can be used to enhance students' progress and success through these critical lower division courses.

The second major factor that is beginning to force us to explore new modes of delivering educational content is the dissolving of geographic boundaries. The emerging global telecommunications network is beginning to eliminate the protected territories that have always ensured regional providers with a base of local students. Universal access to a vast array of learning options is creating a competitive pressure on our educational institutions. Public and private educational content providers located out-of-state or even beyond our country's borders will soon erode Florida's home market.

Florida's community colleges can play a vital part in keeping pace with these changes and meeting the challenges ahead by advancing the state's distance learning initiative. The following is a proposal for the establishment of a Florida Community College Instructional Network that would allow community colleges to leverage and build on existing state technology infrastructure in order to share resources and broaden access to education through distance learning. This proposal represents the vision for making these goals a reality.

II. RATIONALE

Community colleges, by design, meet the diverse educational needs of their communities including serving the non-traditional student C a student who, in many cases, must juggle job and family while pursuing educational opportunities. Studies of distance learning programs have shown that these programs are, in fact, most attractive to non-traditional students, in part because distance learning initiatives can bring education to the student rather than the student to education. These nontraditional students include highly motivated professionals pursuing continuing education or courses for maintaining licensure or certification; employees interested in taking classes for job advancement; or adults seeking a second chance at a college degree. These studies have also shown that the majority of participants in distance learning programs are students who are older than the traditional student and who are holding down a job and taking courses before or after their work day.

The same "nontraditional" student who is attracted to and successful in taking distance learning courses is clearly one that community colleges have traditionally served. The Florida Community College System enrolls more than 800,000 students in credit, non-credit, vocational, adult education, and supplemental courses. The average age of a community college student in Florida is 30. Statistics also show that many of these students are part time. In summary, this is a market that has a demonstrated need for the flexibility and convenience offered by distance learning.

A. Current Situation

Florida's 28 community colleges were established to serve the citizens of Florida by (1) providing lower level undergraduate instruction and awarding associate degrees, (2) preparing students directly for vocations requiring less than baccalaureate degrees, (3) providing student development services, and (4) promoting economic development for the state. By bringing the instruction to the student rather than the student to the instruction, Florida's community colleges can serve this state's educational needs in a way no other delivery system can. Florida's community college system is often times the only point of access to education that students can pursue.

One tool effectively used by Florida's community colleges to meet the education and training needs of their communities is distance learning. All Florida colleges have varying degrees of involvement in distance learning.

- While approximately 7% of Florida's community college students are now enrolled in

college-credit distance learning classes, all colleges are expanding their student load. (Specific institutional data on distance learning student numbers will soon be available: starting with the Fall Term, 1996, the community college system's automated student data base began to distinguish between distance learning students and campus-based students.)

- Twenty-four of the twenty-eight colleges have established a presence on the World Wide Web. Many of these colleges have extensive sites and have begun to serve students via the Internet. All of the colleges plan to become nodes on the Internet. In addition, several colleges have begun to offer a variety of instructional courses over the Internet and other on-line technologies.

- Most distance learning courses currently used by community colleges are telecourses - an instructional package consisting of textbooks, a study guide that links the print materials to the video lessons, a faculty guide, and a series of video programs. Videos are delivered via open broadcast, cable television, or videocassette loan or rental to students.

- All of Florida's 28 community colleges have satellite downlink capability and nearly 40% own or have access to satellite uplinks. Most of the community colleges have been active participants in the state coordinated teleconferencing network, SUNSTAR.

- Many of the community colleges have video conferencing equipment and facilities for both video conferencing and teleconferencing. The state telephone network, SUNCOM, has expanded its infrastructure to provide advanced telecommunications services to support this activity.

These examples, however, only scratch the surface of the available technology which can be used to broaden access to educational resources. To extend and enhance community college distance learning capabilities, the colleges must use a variety of asynchronous (anytime, anywhere) learning technologies. Toward this end, the community colleges are proposing the establishment of a statewide distance learning infrastructure C the Florida Community College Instructional Network C to connect the institutions and coordinate efforts to provide quality education accessible to all Florida residents. The Network would be managed by the Florida Community College Distance Learning Consortium.

B. Proposed Instructional Network

The Florida Community College Distance Learning Consortium was created to provide coordination among the 28 community colleges in the development, delivery, marketing, and acquisition of distance learning instruction. The proposed network specifically addresses the continued development of a technology-based instructional delivery system that both supports the mission of community colleges and ensures maximum access to higher education for all Florida residents by eliminating the barriers of time and place.

The goal of increasing access through technology has been actively discussed for several years and Florida, through actions of the Legislature, has made significant investments in the infrastructure needed to achieve it. Examples of this investment include SUNCOM, FIRN, the DOE Retrofit Categorical, LINCC, LUIS, the DMS teleconferencing network, the creation of the FDLN, and other legislatively-considered items that recognize the increasing role that technology does and could play in improving education and service delivery in Florida.

While these investments have begun to develop needed infrastructure, a flexible and dynamic network is required to provide the appropriate level of student and administrative support services necessary for distance learning courses. Toward this end, the Florida Community College Instructional Network would leverage and build on these existing technology investments to create an instructional delivery system that will:

- provide technology based linkages among Florida's community colleges
- establish a mechanism for increased delivery of high-demand, lower-division courses and vocational and professional programs of importance to the state or to a particular region
- increase student access to instructional programs and student support services
- foster economic development through local communities
- encourage business and education partnerships
- capitalize on existing and planned community college and state investments.

III. OBJECTIVES

The proposed network is designed to meet the following objectives:

A. Increase Access to Education - Most educational delivery today is bound to a fixed time and place. While this system works for some students, it does not work for a significant number of non-traditional and under served students who, through constraints of time and/or geography, cannot take advantage of the broad range of educational resources available through community colleges.

By providing alternatives to classroom-bound instruction, the Florida Community College Instructional Network would help to eliminate barriers of time and place. The technologies of distance learning link community colleges with each other as well as with high schools, remote learning centers, work environments and homes.

B. Reduce the Cost of Course Delivery - The main focus in the development of the FCC Instructional

Network will be to connect the state's 28 community colleges through advanced telecommunications technologies. This connectivity would, in turn, encourage the statewide sharing of resources and delivery of courses which would reduce costs and provide community colleges with increased opportunity for interdisciplinary and collaborative activities.

C. Increase Lifelong Learning & Training Opportunities for all Florida Residents - Technological change and shifting market conditions have triggered a growing need among many workers to continue their learning in order to survive economically. Continuous learning or Alifelong learning", now critical to the ability to remain competitive in the job market, has created a new diversity of learners and learning needs. These changes bring challenges to community colleges and other institutions of higher education to provide individualized or personalized learning that allows instruction to take place away from the traditional classroom.

The FCC Instructional Network responds to this wave of change by supporting instruction that meets the needs of lifelong learners through distance learning technologies. By bringing education to the student rather than requiring the student to come to education, online and interactive computer networks, microwave, video conferencing, satellite and cable technologies can all be used to achieve this objective.

D. Increase Collaboration and Cost-Sharing Among Community Colleges and State Universities - In an environment of shrinking budgets and cost cutting, it is more important than ever to maximize resources. The proposed Network will enhance interdisciplinary and collaborative activities among the community colleges and between the community colleges and state universities. This increased collaboration will facilitate the identification and delivery of articulated associate to baccalaureate degree programs. Such distance learning programs will provide for the transfer of credit between and among Florida's postsecondary institutions. *(The community colleges, state universities, and private sector are working together to develop technical specifications and guidelines for connectivity as it relates to the Education Facilities Infrastructure Improvement section of the 1995 Telecommunications Legislation. Approved by the Florida Distance Learning Network, the purpose of this plan is to establish a coordinated system for cost efficient, advanced telecommunications services and distance education. This technology plan contains an inventory of existing capabilities in educational institutions and government agencies throughout the state and can help guide the FCC Instructional Network strategy for leveraging existing resources and establishing private sector and inter-institutional partnership to build an effective, cost efficient distance learning network.)*

E. Reduce Requirements for New Facilities - According to a recent draft (Major Issues in Technology for Florida Postsecondary Education: An Analysis and Recommendations) prepared by the Florida Postsecondary Education Planning Commission, enrollment increases of up to 40% (due to rising numbers of high school graduates in the next decade) will pose significant challenges to Florida's current system of postsecondary education. This enrollment trend will have tremendous impact on community colleges and universities, an impact that will be even greater because Athese [graduates] must be accommodated on the basis of a relatively fixed revenue base . . . .@

Increased numbers of students translates into a need for more classes, more classroom facilities, more faculty, and more student support services. The proposed instructional network would shift the delivery of education away from physical location(s) of community colleges and into the homes, workplaces, and other remote learning sites. This strategy would work to lessen the impact of an increased student population on the physical infrastructure of the schools and reduce needs for new facilities.

F. Reduce Time Needed to Obtain Degree, Certificate, and/or Required Training - With increasing numbers of students straining the resources of community colleges and universities throughout the state, students are often challenged in their efforts to enroll in certain postsecondary courses and/or programs. This can ultimately affect the time needed for students to complete their degree/certificate. Utilizing technology, community colleges have the potential of increasing the number of course offerings by providing anytime, anywhere access to students. This broadened access and flexibility can assist students in completing their degrees/certificates in a timely manner.

This situation of Abottleneck@ courses (high student demand with high student withdrawal/failure rates) is a significant factor for prolonging the time students need to meet degree requirements. The FCC Instructional Network would allow colleges to provide these high demand courses at times and places convenient for students so that progress toward the degree and/or certificate is facilitated, not slowed.

G. Increase Capability through Strategic Partnerships with the Private Sector -

Telecommunications providers, cable operators, and other private sector companies can provide needed expertise and technical advice for developing local distance learning networks. In fact, these providers are already working closely with the Florida Distance Learning Network on the statewide plan for advancing distance learning initiatives in Florida. The establishment of the FCC Instructional Network will offer additional opportunities to develop strategic partnerships with providers to implement advanced technologies for educational delivery.

IV. NETWORK DESIGN

The Consortium proposes to create and manage a statewide instructional network for community college course delivery that will increase student access to courses required for the A.A. and A.S. degrees, vocational certificates, adult education, workforce development, and lifelong learning. Courses will be delivered through a combination of telecommunications technologies to an institution, to a site managed or served by an institution, or directly into the home (via television or computer) for viewing and/or taping/storing. Local institutions will continue to enroll and support the student.

The Network would provide video conferencing equipment or system enhancements needed for the reception, transmission, and management of web-based courses at every institution, connecting all institutions via the Public Switched Telephone Network (PSTN) and SUNCOM. The video conferencing equipment can be used to deliver a video-based course to another community college site; multiple community college sites; or to a cable, satellite, microwave or ITFS head end. Once a course is delivered to any site, it may be shown in real time or taped for delayed viewing either by a single student, an entire class, or (through local television distribution systems) an entire institution. If a course is web-based, it can be accessed from home or classroom sites, according to the design of the course and its utilization strategy.

If a video-based program (either live or on-tape) is intended for statewide (or broadcast) distribution, it would be transmitted from the video conferencing system's codec to a satellite uplink which sends the digitized video program to a satellite. The satellite can broadcast a program to any receiving institution statewide, to one or all of the state's PBS TV stations, or to a local cable television company. Once received locally, the receiving institution can use the program in several ways, including delivery into the home through cable television, or to area businesses and K-12 schools. (Many colleges already have current agreements for educational access via their area cable franchise. The Network would seek to both use and expand these agreements.)

If the college* were using the Network to receive a course, it would simply schedule the equipment and the class and

- show it at the scheduled time (if video-based);
- tape it for later class viewing or student checkout,
- redistribute through locally-available systems like cable, public television, microwave, or closed circuit television;
- repackage or revise a course as feasible; or
- offer it in real time with live interactivity with some number of additional classrooms which could be located anywhere.

*Web-based classes can be accessed by an individual student via the Internet by connecting directly to the originating institution's course site.

For example, if a college wanted to originate or deliver a course, it would:

- design and produce a course for interactive, real time delivery to a specific number of sites via the video

conferencing equipment alone; or

• design and produce a course to be accessible on the Internet; and

• deliver the course via cable, microwave, ITFS, or closed-circuit television to an existing network (i.e. local cable channel); or

• deliver a produced course via the PSTN and/or SUNCOM systems to a satellite uplink for broadcast to any receiving site statewide; or

• deliver the course directly to an uplink for broadcast.

Of course, colleges also have the option of taking an existing course, as developed by another institution or educational publisher, and repackaging it for local delivery.

Reception as well as further distribution would be full, coordinated by all community colleges. The FCC Instructional Network could also be used for information and communication purposes, providing a means for college faculty and staff to meet with other colleges to plan, design and develop courses; with business and industry; with Division staff; and other state agencies' staff without the time and expense of travel.

The FCC Instructional Network is unique in its design in that it will give every Florida community college the minimal technology tools to both deliver to and receive instructional programs from multiple community colleges without regard to location. This will allow individual institutions to develop and produce college courses in a specific content area especially for remote delivery. With individual colleges specializing in more narrowly defined content, i.e., bottleneck or other high demand areas, an institution may assign proportionally-higher resources to a course that will subsequently be used statewide. At the same time, the increased design and production costs will be offset by wider distribution and use by other colleges.

Institutions which receive live distance learning courses from other colleges also benefit. Most obviously, more and enhanced courses are made available through distance learning to their institution and students. The receiving institution enrolls the students in the distance learning course and ensures those students are provided all necessary academic and student support services. The institution delivering the instruction and the institution receiving the instruction have implemented a revenue sharing plan which reflects the resources both have invested in the course and thus their share of the revenue.

V. NETWORK COMPONENTS

The Florida Community College Instructional Network proposes to use a combination of new and existing components to reach its goal of connecting all colleges to enable statewide distance learning program delivery and participation. For the taxpayer, this means that existing infrastructure will be maximized with strategic investments and public-private collaboration. *(Each of the components included below already provide a unique and effective service to state governmental agencies and educational institutions. The Network will work with these existing entities as needed to deliver community college courses and programs and allow for needed student interaction and program access. This proposal in no way is meant to imply that the Network will in any way manage or coordinate the already effective services provided.)*

A. Existing Network Components

1. SUNCOM - The SUNCOM Network is an important component of the proposed FCC Instructional Network for the following reasons:

- advanced telecommunications services rates are negotiated by Florida's Department of Management Services (DMS);
- SUNCOM delivery nodes help to keep rates as low as possible; and
- DMS local delivery nodes may be expanded to further minimize costs.

2. DMS Video Conferencing Network - DMS operates T-1 thru T-3 fiber network and offers video conferencing services in 14 locations statewide. DMS also provides audio conferencing and video-bridging services as needed to support the use of this service. These sites may ne used to expand the video

conferencing reach of the community colleges by providing additional sites for the delivery of courses. *(NOTE: Several other state agencies either have video conferencing networks in place or are planning on implementing them in FY 1997-98. This means that the community colleges will have additional course delivery sites for distance learning video-based instructional programs.)*

3. FIRN - The Florida Information Resources Network provides a communications link among colleges and universities as well as public school districts. It allows for data transfer and can be used for real time and delayed interaction between faculty and student or among students to take tests, deliver text, respond to questions, locate resources, etc. The FCC Instructional Network will use FIRN for e-mail, interaction, access to library resources, etc.

4. FPTV Uplink - In anticipation of increased use of satellite broadcast technologies by other state agencies as well as by education, teleconferencing equipment, (allowing a single site to connect to any receive site via a satellite uplink), has already been positioned for use at the Capitol location of Florida Public Television. The FCC Instructional Network would use this and add equipment at other publicly owned television station uplinks as possible network uplink sites. Institutions which have access to an uplink without needing the video conferencing or terrestrial link, may deliver programs to a satellite in other, established ways.

5. SUNSTAR - This network of community college downlink sites can provide additional resources for program reception and alternative delivery. The SUNSTAR network is operational, controlled by individual institutions, and has been particularly viable in delivering programs to Florida business and industry. The Network could, for example, use a SUNSTAR site for regularly scheduled instructional programs, in addition to the ad hoc nature of current SUNSTAR programs.

6. TELSTAR 401/402R - Florida owns a transponder on the recently lost satellite TELSTAR 401. Subsequent to this unanticipated and highly improbable loss, the state has been offered a comparable transponder on TELSTAR 402R, which is already in successful operation. The new transponder provides a low cost alternative to course broadcast and delivery in Florida and beyond.

7. Local Cable Channels - Many community colleges already have agreements with local cable operators to provide an educational access channel in their local areas. As a part of the proposed network, local cable operators will be asked to carry selected college-level courses on a regular schedule completely controlled by the local institution. For example, a statistics class from TCC would be received from the satellite receiver or via the video conferencing codec at PJC and redistributed according to the protocols in place with that cable franchise. The course and schedule is decided by the college at the local level. For those sites without educational cable access, the Consortium proposes to assist in obtaining new or expanded partnerships.

8. Florida Public Broadcasting Stations - Production, uplink and downlink capabilities of the PBS affiliates will be invaluable to the use and continued development of the FCC Instructional Network. PBS currently reaches 99% of all Floridians with its broadcast signal - offering another way to distribute programs for relatively low cost. Courses could, for example, be transmitted to PBS TV stations overnight and taped for local distribution the next day via local delivery systems (like ITFS or closed circuit television).

9. ITFS Delivery Systems - Program redistribution is currently managed through microwave or ITFS systems at many institutions. These systems use proven technology, are inexpensive to operate, and can be used interactively. For those colleges with ITFS systems in place, programs would still be received via satellite, but then may be redistributed via a combination of microwave, cable, and closed circuit systems. (Again, the basic premise of the Network is to maximize existing investments - not build a separate system for distance learning.)

10. LINCC/LUIS - Remote learners need a variety of instructional support mechanisms including access to institutional and public libraries. Instructional resources needed by faculty and staff may be located and soon, accessed via FIRN, LUIS and LINCC. Minimal library services to any student (and the distance learner in particular) involves seven key elements: access to electronic resources, reference services, library instruction, borrowing privileges, document delivery, course reserve services, and access to library equipment and facilities.

11. Overall Planning and Coordination (FCCDLC) - The Florida Community College Distance Learning Consortium will play several critical support roles in creating, implementing and using the FCC Instructional Network. Specifically, the Consortium will:

- provide technical assistance as needed to integrate new technologies into existing networks and systems;
- assist in the identification of courses for statewide and/or regional delivery
- oversee license acquisition of pre-produced courses;
- provide access to student support services
- identify new sites (in schools, community centers, homes) and provide coordination for course delivery and expanded services;
- plan for articulation with upper division programs;
- coordinate the course schedule for statewide program offerings delivered via satellite;
- represent the colleges in resource acquisition including rate negotiation (T-1, satellite uplink, space segment or satellite time);
- oversee the acquisition of needed video conferencing equipment to be purchased off the DMS bid list; and
- assist in the statewide marketing of selected courses and program offerings.

B. Needed Network Components

1. To be successful, the FCC Instructional Network must create a means for all community colleges to be "connected." For some colleges this will be a completely new undertaking which requires hardware, software, staff development, systems integration, and new transmission technologies. Other colleges have been using video conferencing equipment for some time but may need some peripheral equipment or software to enable better quality production or delivery.

Others may be producing studio quality programs for satellite delivery but have no means for interactivity. In establishing a coordinated network, the Consortium would determine needs through site surveys and specific support requests and provide only that equipment or resource that is necessary to make the network viable (and insure that any community college may participate at the level desired.)

2. Multiple T-1 Services - T-1 service is the equivalent of 24 voice-grade telephone lines. It also provides the minimum bandwidth needed for the delivery of full motion video. Current community college needs to support both administrative and instructional uses of technology are being met through a variety of telecommunications service levels. Multiple T-1 service, with the appropriate routing or switching hardware, will allow community colleges to manage bandwidth more effectively while increasing services to students, faculty, and administrators. As DMS begins the rate negotiation process for the state, the community college system is requesting that the desired level of advanced telecommunications service for each eligible facility be multiple T-1.

Each community college (eligible facility) is required by legislation to prepare and submit a request for advanced telecommunications service. Requesting that multiple T-1 services be made available at each eligible facility also supports DMS' rate negotiation process and will better plan for increased service to all eligible facilities throughout the state. All colleges, even the most remote, will benefit from DMS' ability to negotiate lower recurring service rates for advanced telecommunications services.

3. Migration Strategy - Advanced telecommunications services as well as computer technologies are rapidly changing, improving and becoming more cost effective. The proposed FCC Instructional Network is based on a currently deployed technology with easily upgradeable components that can change to take advantage of more efficient or cost effective technology. Specifically, as telephone and cable companies install more fiber optic networks, it is the intent of the Network to utilize these technologies to delivered voice, video, and data within and among the colleges.

C. Course Development and Delivery

Under the FCC Instructional Network, community colleges would work collaboratively to develop, produce, and acquire distance learning courses. The first priority for statewide course delivery are those courses which are in specific high demand and high cost areas.

As stated earlier, the State Board of Community Colleges has established, by rule, the Florida Community College Distance Learning Consortium, which serves as an advisory committee to the State Board. The Consortium's primary role, as it relates to the FCC Instructional Network, is to coordinate the establishment of a technology-enhanced delivery system that supports the mission of the community colleges and ensures maximum access to higher education for all Florida residents by utilizing instructional technology and eliminating the barriers of distance, time, and place.

The Consortium recognizes that if technology is viewed as an Aadd-on@ to the existing delivery system, it could have the potential of increasing costs and complexity. This is neither a strategy for educational effectiveness nor cost reduction. The Consortium believes that, to take full advantage of a technology-enhanced postsecondary education delivery system, re-engineering portions the community college delivery system is a necessary prerequisite.

The first such "re-engineering" attempt has been to address the issue of geographic boundaries within the community college system. The Consortium has developed and recommended for approval an "Out-of-District Distance Learning" policy. This policy outlines the procedures describing how distance learning courses can be delivered either regional and/or statewide. (*It is anticipated that the State Board of Community Colleges will approve the Out-of-District Distance Learning Policy at their March 7, 1997 meeting.)*

Coupled with this policy and the FCC Instructional Network, the Consortium can (1) coordinate the review and use of existing courseware or (2) convene product design teams made up of representatives from the community colleges to collaborate on the development and packaging of high demand or high cost courses for distance learning. It is the intent of the Consortium to fully utilize existing courses (video, web-based, or hybrid) developed by Florida colleges, by business and industry program developers, or by other colleges and universities. Courses selected for development and support would allow proportionately higher resources to be assigned to instruction that will subsequently be used regionally and/or statewide. At the same time, design and production costs would be offset by wide distribution and use by many colleges. Product design teams will collaborate their efforts with the Institute on Public Post Secondary Distance Learning in an effort to ensure that all appropriate distance learning courses can transfer and articulate into the upper division level of a baccalaureate degree.

Once an existing course has been identified for acquisition and/or the product design teams have created a distance learning course, it can be piloted in several colleges, evaluated, and subsequently offered in community college catalogs statewide.

Strategies for delivering classes directly to the student would be suggested for on- demand (asynchronous) or real time (synchronous) delivery.

The FCC Instructional Network is meaningless without instructional programs designed to maximize its use. Resources for program development are, in fact, requested collaboratively by the State University System and the Community College System through their legislative budget requests. Programs currently under development and selected existing courses (i.e. state-purchased telecourses) will, however, provide an immediate use for the FCC Instructional Network. Consequently, resources for continued telecourse purchases - but not development - are included in this basic FCC Instructional network budget.

D. Future Development

1. Student Support Services Infrastructure - An automated student support system is currently in design and pilot phases. Students who take advantage of distance learning to complete all or part of their college level course work will eventually have access to more and more enhanced information via the Internet. On-line transcripts, degree audits at multiple institutions, registration for classes, admission, student financial aid, library resources, and other services must be made available to support the distance learning student. Care will be taken to insure integration with this and other evolving student support services pilot projects now underway through DMS; although until those systems are in place actual services cannot be implemented.

2. Advanced Telecommunications Services (ISDN, ATM, DS3, etc.) - Advanced Telecommunications Services are currently in a rapid growth and change mode. Clearly, while the Instructional Network will immediately employ multiple T-1 lines as the lowest common denominator, the hope and expectation is that DMS will continue to upgrade services available on SUNCOM and that the technologies will continue to evolve. For example, DMS is investigating the use of cable as offered by an alternative local exchange company or ALEC. ISDN, ATM, DS3 and perhaps newer technologies, are expected to increase telecommunications services at reduced costs. The Instructional Network will expand with new technologies as is appropriate and cost effective.

3. Additional SUNCOM Nodes - More nodes mean further reduced costs for service. DMS is currently investigating the efficacy of adding additional nodes in strategic places statewide. This would help the Network by keeping service costs down.

4. Faculty/Staff Development - As with any technologic innovation, operational and application knowledge must not be assumed. A comprehensive faculty and staff development plan must be developed and implemented if the Network is to be as successful as the need demands. Faculty and staff training are not a part of this request to build the Network.

VI. IMPLEMENTATION

The proposed implementation process for the FCC Instructional Network will include the following steps:

Step 1: Build conceptual support for Network. Solicit and use feedback from appropriate community college leaders, administrators, faculty and staff.

Step 2: Prepare item for legislative budget request.

Step 3: Develop an agenda for any needed legislative actions in support of the Network or its use.

Step 4: Build conceptual support for Network from the Institute on Public Postsecondary Distance Learning, the Florida Distance Learning Network, and other state agencies, as appropriate.

Step 5: Provide Network design information to community college faculty and staff through a workshop and via other communications.

Step 6: Obtain feedback on Network as proposed and incorporate feedback as appropriate.

Step 7: Secure needed resources.

Step 8: Survey colleges to ascertain needs for distance learning program reception and delivery.

Step 9: Develop partnerships as needed with local cable operators.

Step 10: Identify key courses for purchase, development, adaptation, and statewide delivery.

Step 11: Assist in the implementation of the Network as refined by Step 5.

Step 12: Support needed community college faculty/staff training for Network use. (Does not include comprehensive distance learning development activities.)

Step 13: Develop DCCDL Consortium management role, policies, and procedures for coordination of the Network.

Step 14: Work with the Institute on Public Postsecondary Distance Learning and the Florida Distance Learning Network on issues related to program development, specific course selection, and integration with existing or developing systems.

VIII. CONCLUSION

The proposed FCC Instructional Network will provide a number of benefits to students, to the community colleges, and to the state. These benefits include the following:

If the FCC Instructional Network is implemented as planned, the state's public community college students will be able to:

- take Consortium-selected and coordinated courses at home via cable television;
- avoid waiting for over-enrolled or out-of-sequenced courses;
- access courses not currently available at their local institutions; and
- participate in programs and with faculty/students at other colleges.

Each participating community college will be able to:

- offer courses from other institutions at their local site;
- provide selected courses to other colleges;
- serve students through local cable access;
- sponsor completely interactive courses, conferences, meetings, etc., with other colleges in the state and throughout the nation via the public telephone network;
- allow faculty, staff and student participation in statewide programs; and
- produce and deliver specific courses to individual colleges or statewide.

The benefits to the State and, ultimately, the taxpayer, include:

- reduced need for new facilities;
- reduced education costs as time to graduation for Florida community college students is shortened by offering alternative delivery systems for "bottleneck courses";
- more sharing of community college resources as a single course can serve multiple institutions instead of only the institution developing the program; and
- course delivery to the home allows for more and enhanced learning opportunities for non-traditional students and will better serve individuals as well as Florida business and industry.

ADDENDUM TO FLORIDA COMMUNITY COLLEGE INSTRUCTION NETWORK DOCUMENT

July, 1997

The Situation

The Technical Support and Emerging Technologies Standing Committee were asked to research the viability of utilizing $700,000 (potentially secured from a FY 1996-97 Appropriations) to begin the implementation of the Florida Community College Instructional Network.

Overview

During a audioconference between the members of the TS&ET committee conducted on June 16,1997, the suggestion was made to initiate the implementation of the FCC Instructional Network by constructing a video conferencing site (at an eligible facilities site) at each of the 28 community colleges by granting each institution $25,000 in matching funds from the $700,000 appropriations. To be eligible, each institution

would match the $25,000 with the difference between the $25,000 and the actual amount required to purchase a *"minimally equipped system that meets accepted compressed video standards."* The committee also expressed urgency in aggressively moving ahead with such a plan to illustrate the likelihood of a tangible outcome within a relatively short, but reasonable time frame.

The Plan

Install one compressed video conferencing system at one eligible site selected by each of the 28 community colleges (total of 131 eligible sites within the community college system). Each participating institution would agree to retro-fit a minimum 500 square foot room in which the station would be located. Each of the 28 video conferencing stations would be connected to the SunCom backbone using T-1 leased from a telco as local access. The links would be established using tie-ins to a dial-up "video bridge" provided by the telcos. Once the system is operational, each institution will be responsible for their own monthly line access fees and hourly use charges. Also, each institution will ensure that their respective systems are available for Consortium video conferencing.

The Minimum Standards Video Conferencing System

The vendor selected to provide the 28 video stations must guarantee the equipment meets minimum standards for compressed video *(h.320 overall standard formulated by ITU)*, and be configured to offer optimum conferencing capabilities. An example of one such system (available on State Contract) is the *VTEL 227 Team Conferencing Series* that sells for approximately $37,500, and is adequately equipped. This system offers good interactivity under normal instructional classroom conditions. The minimally equipped VTEL 227 Team Conferencing System comes with a roll cart, central digital processing unit, two 27-inch video monitors, four microphones, a microphone mixer, AppsView control tablet with windows 95 OS, Pentium PC with data ports, CD-ROM and Sony Pan-Zoom-Tilt high resolution camera. The system offers 30-frames per second compressed video and has bandwidth capabilities from 56 to 512kbps. The system is modem in appearance, fairly compact, portable, and it is near self contained - except for monitors. When completely set up, the system fits into a normal classroom environment as though it were a TV-VCR presentation arrangement common to most instructors. The unit can also be rolled into a closet or out-of-the-way storage when not in use.

In the minimum configuration described, the Consortium will provide matching grants of $25,000 to each college, an individual match of as little as $12,000 - $15,000 will be required of each college to purchase the equipment and get connected. Another $500 - $700 may be required to have the access lines installed and get the system ready to operate.

The variable range bandwidth of the VTEL 227 system (56-512kbps) allows each institution to maximize its investment in equipment allowing for upgradability, but to operate at the lower, more economical bandwidth. Optionally equipped with other tools, this system can be upgraded from its minimally adequate configuration to a full-blown professional video conferencing center for training and communications. Upgrade options include features such as a CameraMan Personal Locator system, additional microphones to include more conference participants, an Elmo 400 document camera, and a host of presentation and teaching tools such as a digital whiteboard and drawing tablet.

An added benefit of the compressed video network is that each site would become "multi-point" operational. This benefit allows each institution the flexibility to connect to any other network located anywhere else in the country at any time in order to conduct video conferences that are *independent* of the other 27 community colleges. This frees the institution to, at their discretion, to "lease out" their video conferencing capabilities to any number of private or non-institutional interests when the system is not being utilized for college business.

Implementation Strategies

1. Establish consensus among Consortium members that this plan is what they want to accomplish and represents a viable use of the $700,000.

2. Consortium recommends SBCC approval of plan.

3. The Consortium agrees on a single state approved vendor and a single "minimally equipped" system. By agreeing to a single vendor and system, the telcos and DMS can develop a single installation and operations plan that will apply to all of the colleges.

4. The Consortium requests DMS to agree to become involved as a partner by helping each institution's connectivity to the SunCom backbone and T-1 access. DMS can also negotiate the cost of the monthly fixed fee for access and an hourly rate for each institution.

5. The Consortium takes all project costs, including monthly fixed access fees, hourly use fees, and the match each institution would have to secure, to the Council of Presidents and SBCC for approval.

6. Appoint/select project manager to coordinate and manage the 9-step project phase-in plan outlined below:

a. Set deadline for DMS to obtain cost figures for all institutions. To do so, DMS will need to know the exact location of each video conferencing site.

b. Set deadline for each president to commit matching funds.

c. Set deadline for infrastructure installation at each site.

d. Set deadline for delivery of system to each site.

e. Set deadline for installation of each station by the vendor.